

(19) World Intellectual Property Organization  
International Bureau



(43) International Publication Date  
21 July 2005 (21.07.2005)

PCT

(10) International Publication Number  
**WO 2005/065282 A3**

(51) International Patent Classification<sup>7</sup>: **A61B 5/055**,  
A61N 2/00, G01N 33/544, 33/551, G03G 19/00

(21) International Application Number:  
PCT/US2004/043459

(22) International Filing Date:  
23 December 2004 (23.12.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:  
60/533,725 31 December 2003 (31.12.2003) US

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(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM,

AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

**Published:**

- with international search report
- before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

(88) Date of publication of the international search report:  
5 January 2006

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: REMOTE MAGNETICALLY INDUCED TREATMENT OF CANCER

(57) Abstract: This invention describes unique treatment methods and innovative articles that can be placed in a human or animal body to enable controlled destruction of diseased tissue. The methods include destruction of diseased cells and tissues by magnetically controlled motion and an externally controllable drug delivery process with a capability to start and stop the drug delivery at any time, for any duration. This invention provides two approaches to diseased cell destruction, (1) magneto-mechanical disturbance of cell structure (e.g. cancer cells) for cell lysis and (2) magnetically activated drug release at local regions (e.g. tumors) from a magnetic-particle-containing drug reservoir. The invention also provides combinations of both the above treatments for dual therapy. It further combines one or both of the treatments with magnetic hyperthermia for multifunctional cell destruction therapy. The approaches can be combined with magnetic MRI for monitoring the accuracy of placement as well as for following up the cancer destruction progress and appropriate reprogramming of the magneto-mechanical therapy and remote-controlled drug release.



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